No. 8000066

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Holden's Foundation Seeds, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

CORN

'LH38'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of* Washington *this* 26th *day of* February *in the year of our Lord one thousand nine hundred and* eighty-one.

Attest:

Commissioner
Plant Variety Protection Office
Grain Division

John R Block

FORM GR-470
(12-15-72)

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

FORM APPROVED
OMB NO. 40-R3712

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: *See Reverse.*

1. VARIETY NAME OR TEMPORARY DESIGNATION	2. KIND NAME	FOR OFFICIAL USE ONLY	
LH38	Yellow dent corn	PV NUMBER 8000066	
3. GENUS AND SPECIES NAME	4. FAMILY NAME *(Botanical)*	FILING DATE 3/4/80	TIME 9:00 (A.M.) P.M.
Zea mays	Gramineae	FEE RECEIVED $ 500.00 $ 250.00 $	BALANCE DUE $ $ $
	5. DATE OF DETERMINATION 1978		

6. NAME OF APPLICANT(S)	7. ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)*	8. TELEPHONE AREA CODE AND NUMBER
Holden's Foundation Seeds, Inc.	P.O. Box 299 Williamsburg, Iowa 52361	319-668-1100

9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: *(Corporation, partnership, association, etc.)*	10. STATE OF INCORPORATION	11. DATE OF INCORPORATION
Corporation	Iowa	1968

12. Name and mailing address of applicant representative(s), if any, to serve in this application and receive all papers:

Mr. Art Johnson
Holden's Foundation Seeds, Inc.
P.O. Box 299
Williamsburg, Iowa 52361

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

[X] 13A. Exhibit A, Origin and Breeding History of the Variety *(See Section 52 of the Plant Variety Protection Act.)*

[X] 13B. Exhibit B, Botanical Description of the Variety

[X] 13C. Exhibit C, Objective Description of the Variety

RJS 3/4/80 [X] 13D. Exhibit D, Data Indicative of Novelty

[X] 13E. Exhibit E, Statement of the Basis of Applicant's Ownership

14A. Does the applicant(s) specify that seed of this variety be sold by variety name only as a class of certified seed? *(See Section 83(a). If "Yes," answer 14B and 14C below.)* [ ] YES [X] NO

14B. Does the applicant(s) specify that this variety be limited as to number of generations? [ ] YES [ ] NO

14C. If "Yes," to 14B, how many generations of production beyond breeder seed? [ ] FOUNDATION [ ] REGISTERED [ ] CERTIFIED

The applicant declares that a viable sample of basic seed of this variety will be deposited upon request before issuance of a certificate and will be replenished periodically in accordance with such regulations as may be applicable.

The undersigned applicant(s) of this sexually-reproduced novel plant variety believes that the variety is distinct, uniform, and stable as required in Section 41 and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant is informed that false representation herein can jeopardize protection and result in penalties.

1/15/80
(DATE)

Holden's Foundation Seeds Inc.
(SIGNATURE OF APPLICANT)
By Donald Holden V.P.

(DATE)

(SIGNATURE OF APPLICANT)

Exhibit A

Origin and Breeding History of Variety

8000066

LH38

RJS 5/6/80

LH38=Ex374=A619 HT x L120 Selection 2827-10-1-2-1-3-3

Item 1:

Item 1 is a schematic outline of the development of LH38. A pedigreed breeding system was used in which individually selected ears from the previous generation were planted in an ear to row manner. Plants within each row were self-pollinated. Ears from these self-pollinated plants were chosen to perpetuate the system.

Item 2:

Item 2 is a collection of copies of pages from Holden's Foundation Seed's Nursery Books. The rows involved in the development of LH38 have been underscored.

L120 is a Holden Foundation Seeds' private line. It is related to the Oh43 family of corn, but it is agronomically unacceptable as an inbred line.

LH38 Application 8000066

Addendum to Exhibit A:

1) The inbred line LH38 has been self-pollinated and planted ear to row for a sufficient number of generations to assure uniformity and homozygosity of the line.

Ear height, ear type, tassel type, plant height, are very uniform.

The twisting of the top leaves around the central portion of the plant will be variable from plant to plant. However, when 50 self-pollinated ears from a random sample of LH38 plants were planted ear to row with a hope to eliminate the twisting trait, all the rows showed the trait. There was variability between plants within the row, but the variability across rows was very consistent. The variability of this trait probably was due to a genetic, environmental interaction.

2) The Iowa Crop Improvement Association has accepted LH38 for certification, which shows that the line is both uniform and stable.

Enclosed are copies of the foundation tag for LH38 and a copy of Holden's Foundation Seeds field reports indicating which fields met certified standards.

Eleven fields were inspected for possible certification; however, only one was accepted for final certification.

The other ten were rejected because of inadequate isolation and stray pollen contamination. None of the fields were rejected because of nonuniformity or instability of the LH38 line.

EXHIBIT A RJS 3/6/80
8000066

LH38 = Ex374 = 2727-10-1-2-1-3-3

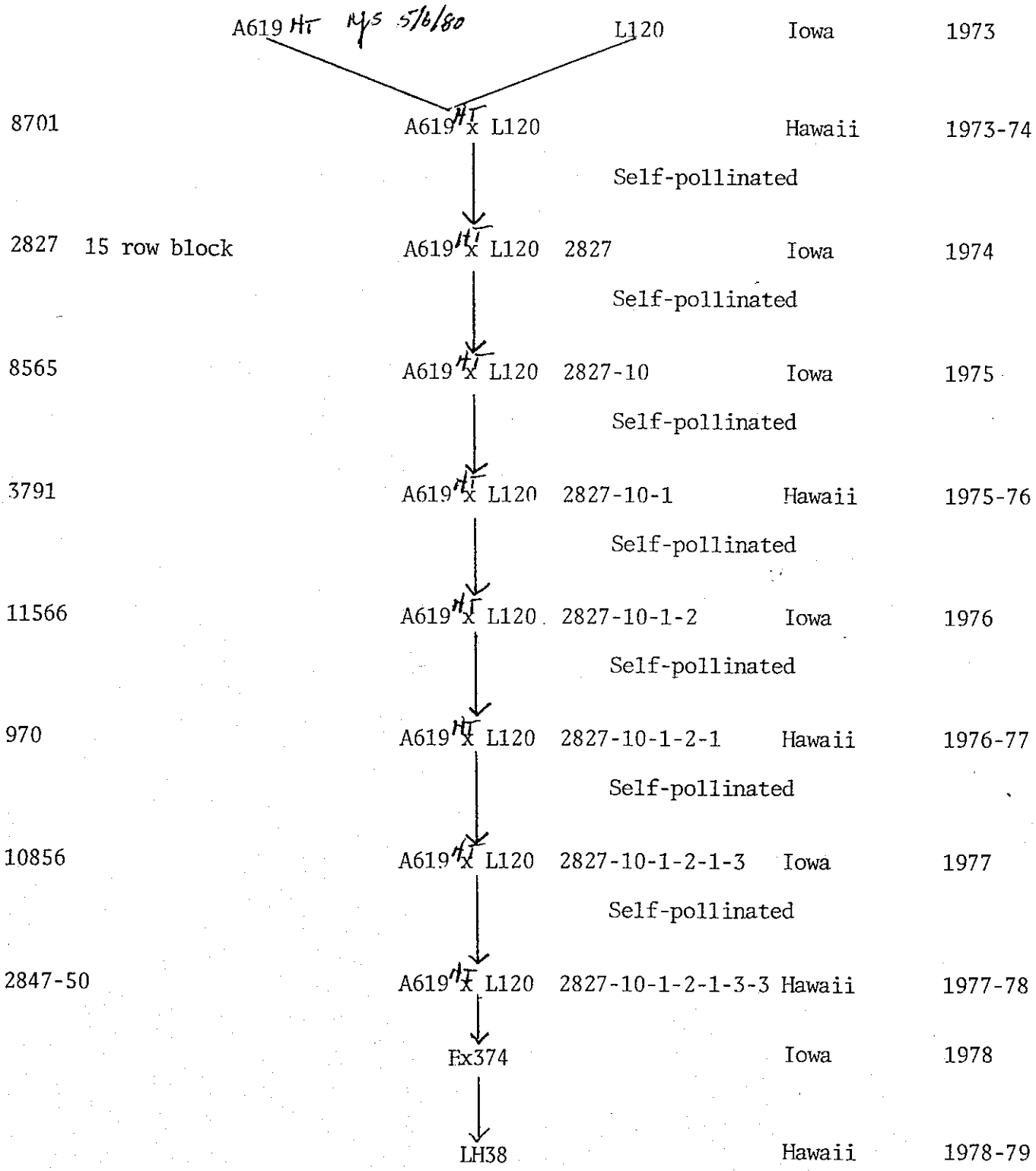

Exhibit B

LH38 is a yellow dent corn inbred. The line is most similar to A619HT in plant type. However, the last 3-4 leaves of LH38 to emerge from the plant wrap tightly around the central portion of the plant. This wrapping covers the top of the plant to point about 15° from straight up. A619HT does not exhibit this characteristic. The leaves of LH38 do relax prior to and during tassel emergence, so pollination is normal.

LH38 has only 5 lateral tassel branches, where A619HT has 11 lateral tassel branches.

LH38 has a stronger cob than A619HT and ear diameter of LH38 is less than A619HT (40 mm. vs. 46 mm.).

LH38 has a greater two-eared tendency than A619HT; 1.8 ears/plant vs. 1.3 ears/plant.

LH38 has a much greater resistance to summer root lodging than does A619HT.

LH38 is 180 cm. tall, and A619HT is 196 cm. tall.

The ear height from ground to base of the top ear is 49 cm. for LH38 and 61 cm. for A619HT.

When LH38 is substituted for A619HT in producing a hybrid, the F' is usually shorter, lower-eared, better standing, higher yielding, and the harvested corn will be drier.

Statistical evaluations and data for most of the above differences will be provided in Exhibit D.

LH38

FORM GR-470-28 (2-15-74)

FORM APPROVED. OMB NO. 40-R3712

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

EXHIBIT C (Corn)

OBJECTIVE DESCRIPTION OF VARIETY

CORN (ZEA MAYS)

NAME OF APPLICANT(S)
Holden's Foundation Seeds, Inc.

ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code)
Box 299
Williamsburg, Iowa 52361

FOR OFFICIAL USE ONLY
PVPO NUMBER 8000066
VARIETY NAME OR TEMPORARY DESIGNATION

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g. [0][8][9] or [0][9]) when number is either 99 or less or 9 or less.

1. TYPE:

[2] 1 = SWEET 2 = DENT 3 = FLINT 4 = FLOUR 5 = POP 6 = ORNA. ,ENTAL

2. REGION WHERE BEST ADAPTED IN THE U.S.A.:

[7] 1 = NORTHWEST 2 = NORTHCENTRAL 3 = NORTHEAST 4 = SOUTHEAST
5 = SOUTHCENTRAL 6 = SOUTHWEST 7 = MOST REGIONS

3. MATURITY (In Region of Best Adaptability):

(Under "comments" (pg. 3) state how heat units were calculated)

[6][2] DAYS FROM EMERGENCE TO 50% OF PLANTS IN SILK	[1][3][3][8]	HEAT UNITS
[ ][ ] DAYS FROM 50% SILK TO OPTIMUM EDIBLE QUALITY	[ ][ ][ ][ ]	HEAT UNITS
[7][8] DAYS FROM 50% SILK TO HARVEST AT 25% KERNEL MOISTURE	[1][4][5][9]	HEAT UNITS

4. PLANT:

[1][8][0] CM. HEIGHT (To tassel tip)

[ ][4][9] CM. EAR HEIGHT (To base of top ear)

[1][3] CM. LENGTH OF TOP EAR INTERNODE

Number of Tillers:

[1] 1 = NONE 2 = 1–2 3 = 2–3 4 = > 3

Number of Ears Per Stalk:

[3] 1 = SINGLE 2 = SLIGHT TWO-EAR TENDENCY 3 = STRONG TWO-EAR TENDENCY 4 = THREE-EAR TENDENCY

Cytoplasm Type:

[1] 1 = NORMAL 2 = "T" 3 = "S" 4 = "C" 5 = OTHER (Specify) _____

5. LEAF (Field Corn Inbred Examples Given):

Color:

[2] 1 = LIGHT GREEN (HY) 2 = MEDIUM GREEN (WF9) 3 = DARK GREEN (B14) 4 = VERY DARK GREEN (K166)

Angle from Stalk (Upper half):

[2] 1 = < 30° 2 = 30–60° 3 = > 60°

Sheath Pubscence:

[1] 1 = LIGHT (W22) 2 = MEDIUM (WF9) 3 = HEAVY (OH26)

Marginal Waves:

[1] 1 = NONE (HY) 2 = FEW (WF9) 3 = MANY (OH7L)

Longitudinal Creases:

[3] 1 = ABSENT (OH51) 2 = FEW (OH56A) 3 = MANY (PA11)

Width:

[1][0] CM. WIDEST POINT OF EAR NODE LEAF

Length:

[0][7][9] CM. EAR NODE LEAF

[1][0] NUMBER OF LEAVES PER MATURE PLANT

6. TASSEL:

[ ][5] NUMBER OF LATERAL BRANCHES

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Branch Angle from Central Spike:

[1] 1 = < 30° 2 = 30–40° 3 = > 45°

Peduncle Length:

[4.][2] CM. FROM TOP LEAF TO BASAL BRANCHES

Pollen Shed:

[1] 1 = LIGHT (WF9) 2 = MEDIUM 3 = HEAVY(KY21)

[1] Anther Color:
[0] Glume Color:
1 = YELLOW 2 = PINK 3 = RED 4 = PURPLE 5 = GREEN
6 = OTHER (Specify) _____

Pollen Restoration for Cytoplasms (o = Not Tested, 1 = Partial, 2 = Good)

[ ] "T" [ ] "S" [2] "C" [ ] OTHER (Specify Cytoplasm and degrees of restoration) _____

7. EAR (Husked Ear Data Except When Stated Otherwise):

[1][4] CM LENGTH [4][0] MM. MID-POINT DIAMETER [9][5] GM. WEIGHT

Kernel Rows:

[2] 1 = INDISTINCT 2 = DISTINCT [1][6] NUMBER

[1] 1 = STRAIGHT 2 = SLIGHTLY CURVED 3 = SPIRAL

Silk Color (Exposed at Silking Stage):

[1] 1 = GREEN 2 = PINK 3 = SALMON 4 = RED

Husk Color:

[1] FRESH
[6] DRY
1 = LIGHT GREEN 2 = DARK GREEN 3 = PINK 4 = RED 5 = PURPLE 6 = BUFF

Husk Extention: (Harvest Stage)

[2] 1 = SHORT (Ears Exposed) 2 = MEDIUM (Barely Covering Ear) 3 = LONG (8–10CM Beyond Ear Tip) 4 = VERY LONG (> 10 CM)

Husk Leaf:

[2] 1 = SHORT (< 8 CM) 2 = MEDIUM (8–15 CM) 3 = LONG (> 15 CM)

Shank:

[1][0] CM LONG [6] NO. OF INTERNODES

Position at Dry Husk Stage:

[1] 1 = UPRIGHT 2 = HORIZONTAL 3 = PENDENT

Taper:

[1] 1 = SLIGHT 2 = AVERAGE 3 = EXTREME

Drying Time (Unhusked Ear):

[3] 1 = SLOW 2 = AVERAGE 3 = FAST

8. KERNEL (Dried):

Size (From Ear Mid-Point):

[1][1] MM LONG [0][8] MM. WIDE [0][3] MM. THICK

Shape Grade (% Rounds)

[1] 1 = < 20 2 = 20–40 3 = 40–60 4 = 60–80 5 = > 80

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8. KERNEL (Dried) :

[1] **Pericarp Color:** 1 = COLORLESS 2 = RED-WHITE CROWN 3 = TAN 4 = BRONZE 5 = BROWN 6 = LIGHT RED 7 = CHERRY RED 8 = VARIEGATED (Describe) _____

[1] **Aleurone Color:** 1 = HOMOZYGOUS 2 = SEGREGATING (Describe) _____

[1] 1 = WHITE 2 = PINK 3 = TAN 4 = BROWN 5 = BRONZE 6 = RED 7 = PURPLE 8 = PALE PURPLE 9 = VARIEGATED (Describe) _____

[2] **Endosperm Color:** 1 = WHITE 2 = PALE YELLOW 3 = YELLOW 4 = PINK-ORANGE 5 = WHITE CAP.

Endosperm Type:

[3] 1 = SWEET (su1) 2 = EXTRA SWEET (sh2) 3 = NORMAL STARCH 4 = HIGH AMYLOSE STARCH 5 = WAXY STARCH 6 = HIGH PROTEIN 7 = HIGH LYSINE 8 = OTHER (Specify) _____

[2][8] GM. WEIGHT /100 SEEDS (Unsized Sample)

9. COB:

[2][0] MM. DIAMETER AT MID-POINT

Strength:

[2] 1 = WEAK 2 = STRONG

Color:

[1] 1 = WHITE 2 = PINK 3 = RED 4 = BROWN 5 = VARIEGATED 6 OTHER (Specify) _____

10. DISEASE RESISTANCE (0 = Not Tested, 1 = Susceptible, 2 = Resistant):

[0] STALK ROT (Diplodia)	[0] STALK ROT (Fusarium)	[0] STALK ROT (Gibberella)
[0] NORTHERN LEAF BLIGHT	[0] SOUTHERN LEAF BLIGHT	[0] SMUT
[0] SOUTHERN RUST	[0] CORN SMUT	[0] BACTERIAL WILT
[0] BACTERIAL LEAF BLIGHT	[0] MAIZE DWARF MOSAIC	[0] STUNT
[ ] OTHER (Specify)		

11. INSECT RESISTANCT (0 = Not Tested, 1 = Susceptible, 2 = Resistant):

[1] CORNBORER	[1] EARWORM	[1] SAPBEETLE	[0] APHID
[1] ROOTWORM (Northern)	[1] ROOTWORM (Western)		
[1] ROOTWORM (Southern)	[ ] OTHER (Specify) _____		

12. VARIETIES MOST CLOSELY RESEMBLING THAT SUBMITTED FOR THE CHARACTERS GIVEN:

CHARACTER	VARIETY	CHARACTER	VARIETY
Maturity	A619 Ht RM 5/16/80	Kernel Type	A619 Ht
Plant Type	A619 Ht	Quality (Edible)	
Ear Type	A619 Ht	Usage	A619 Ht

REFERENCES:

U.S. Department Agriculture. Yearbook 1937.

Corn: Culture, Processing, Products. 1970 Avi Publishing Company, Westport, Connecticut. (Numerous (Authors)

Emerson, R.A., G.W. Beadle, and A.C. Fraser. A Summary of Linkage Studies in Maize. Cornell A.E.S., Mem. 180. 1935.

The Mutants of Maize, 1968. Crop Science Society of America. Madison, Wisconsin.

Stringfield, G.H. Maize Inbred Lines of Ohio. Ohio A.E.S. Bul. 831. 1959.

Butler, D.R. 1954 – A System for the Classification of Corn Inbred Lines – PhD. Thesis, Ohio State University.

COMMENTS:

$$G.D.D. = \left\{ \frac{\text{Hi Temp} \leq 86^{\circ} + \text{Low Temp} \geq 50^{\circ}}{2} - 50^{\circ} \right.$$

Exhibit D:

RLS 5/6/80

LH38 is significantly different from A619 HT in plant height, number of ears per plant, ear height, number of lateral tassel branches, tassel branch angle, peduncle length, number of nodes/shank, ear diameter, number of leaves of mature plant, ear node leaf length, kernels per ear, ear length, and number of kernel rows.

Attached is a summary sheet which shows the mean difference and level at which it is significantly different. A reference for the statistical procedure used to calculate the varience and an explanation is given at the bottom of the summary page.

Also attached is a copy of the field collected data. At the bottom of each page is a mean, differences of the means, and the varience.

Exhibit D

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LH38 vs A619 HT rjs 5/6/80

Trait Compared	Difference	Level of Sig. Difference
Plant height (in.)	6.07	.01
No. ears/plant	0.50	.01
Ear height (in.)	4.76	.01
No. of lateral tassel branches	6.06	.01
Tassel branch angle	1.29	.05
Peduncle length	1.05	.01
No. of nodes/shank	0.49	.05
Ear diameter (in.)	0.30	.05
No. leaves of mature plant	0.46	.01
Ear node leaf length (in.)	1.39	.01
Kernels/ear	82.50	.01
Ear length (cm)	1.89	.01
No. kernel rows	1.55	.01

Ref.:
STATISTICAL METHODS: Snedecor + Cochran

Sample 1
Compute $\bar{x}_1$
Compute $s_1^2 = \left(\frac{\Sigma x_1^2 - \frac{(\Sigma x_1)^2}{n_1}}{n_1 - 1} \right)$

Sample 2
Compute $\bar{x}_2$
Compute s_2^2

$$\bar{D} = \bar{x}_1 - \bar{x}_2$$

$$s_{\bar{D}}^2 = \frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}$$

$$LSD_\alpha = t_\alpha \sqrt{s_{\bar{D}}^2}$$

Degrees of freedom $= n_1 + n_2 - 2$

SUPPLEMENT TO EXHIBIT D

Supplement to Exhibit D

(Data Indicative of Novelty)

Corn Application No. 8000066, "LH38"

There are several unique differences between LH38 and A619Ht.

On LH38 the flag leaf and the second leaf from the top remain erect the full length of the leaf. This condition is prevalent from the time these leaves emerge from the whorl. The entire leaf remains upright through maturity. Photograph (1) illustrates the rigid uprightness of the first three leaves of LH38. Sometimes the end one fourth of the third leaf from the top will break over.

The flag leaf and second leaf from the top on A619Ht droop the last one half of the leaf.

At what time in the maturity of the plant the leaves actually droop is unknown. The condition is quite prevalent at two weeks after anthesis.

Photograph (2) illustrates the drooping of the flag leaf and the second leaf from the top of A619Ht.

LH38 requires a higher temperature for the anthers to dehiss.

During the summer of 1979 it was observed that LH38 shed pollen later in the day than did most other corn inbreds.

In 1980 a test was designed to determine if LH38 did require a higher temperature to shed pollen.

Two rows of LH38 and two rows of A619Ht were planted in the nursery at Williamsburg, Iowa.

The plants in LH38 and A619Ht were tagged on the first day that they shed pollen. Readings were started the day after the day that the most tags were attached.

The time, wet and dry bulb temperatures, and whether LH38 or A619Ht was shedding pollen were recorded approximately every fifteen minutes.

See Table I for a record of observations.

The tassel of A619Ht will shed pollen at least two degrees Fahrenheit lower temperature than will LH38.

The difference between plants within the rows was nonexistent. In other words, when one plant in the row started shedding pollen the other tagged plants in the row were also shedding pollen.

The pollen shed for both inbreds seemed to be independent of variation in Relative Humidity.

Table I

Date	Time	Wet	RH	Dry	Pollen Shed LH38		Pollen Shed A619Ht	
					Row 1	Row 2	Row 1	Row 2
Second Day of Pollen Shed:								
7/23	8:12	64	85	67	No	No	No	No
	8:33	67	82	71	No	No	No	No
	8:50	66	78	71	No	No	No	No
	9:06	68	74	74	No	No	No	No
	9:21	69	74	75	No	No	Yes	Yes
	9:34	70	74	76	No	No	Yes	Yes
	9:51	70	74	76	No	No	Yes	Yes
	10:08	69	67	77	Yes	Yes	Yes	Yes
Third Day of Pollen Shed:								
7/24	8:15	66	90	68	No	No	No	No
	8:30	68	90	70	No	No	No	No
	8:47	68	87	73	No	No	No	No
	9:02	68	74	74	No	No	No	No
	9:17	69	74	75	No	No	Yes	Yes
	9:33	70	73	77	No	No	Yes	Yes
	9:48	69	67	78	No	No	Yes	Yes
	10:03	69	73	77	Yes	Yes	Yes	Yes
Fourth Day of Pollen Shed:								
7/25	8:16	66	81	70	No	No	No	No
	8:33	67	74	73	No	No	No	No
	8:48	66	70	73	No	No	No	No
	9:04	68	70	75	No	No	Yes	Yes
	9:20	68	70	75	No	No	Yes	Yes
	9:34	69	66	77	Yes	Yes	Yes	Yes
*Fifth Day of Pollen Shed:								
7/26	8:01	68	100	68	No	No	No	No
	8:17	68	95	69	No	No	No	No
	8:32	68	95	69	No	No	No	No
	8:48	68	95	69	No	No	No	No
	9:05	69	95	70	No	No	No	No
	9:25	69	95	70	No	No	No	No

Table I

(Continued)

Date	Time	Wet	RH	Dry	Pollen Shed LH38		Pollen Shed A619Ht	
					Row 1	Row 2	Row 1	Row 2
7/26	9:45	70	95	71	No	No	Yes	No
	10:02	71	95	72	No	No	Yes	Yes
	10:18	71	84	74	No	No	Yes	Yes
	10:33	71	82	75	Yes	Yes	Yes	Yes

*It was rainy and cloudy on 7/26 a.m. Note high RH.

Additional Supplement

Exhibit D

(Data Indicative to Novelty)

Corn Application No. 8000066 "LH38"

The wrapping of the last four leaves around the central portion of the plant was stated in the original Exhibit D section as a novelty of LH38. The tight wrapping of the leaves causes the center portion of the plant to tilt out about 15-20° from vertical. The plants also appear to be absent of a whorl. Photo #3 shows LH38 with a vertical white pole beside the plant. Please note the tilting of the plant top. As the plant grows, the outside wrapped leaf relaxes. By the time the tassel emerges all the leaves have unwrapped.

Photo #4 depicts A619Ht. Note how vertical the plant remains as compared to the white pole.

Photo #5 gives a close-up view of the leaf wrapping of LH38.

Photo #6 is a close-up of the whorl of A619Ht.

Photo #7 illustrates how the leaves of LH38 have relaxed from the central portion at tassel emergence.

Photo #8 shows the position of the leaves of A619Ht at tassel emergence as related to leaf wrapping.

LH38

A619Ht

Photo #3

Photo #4

Photo #5

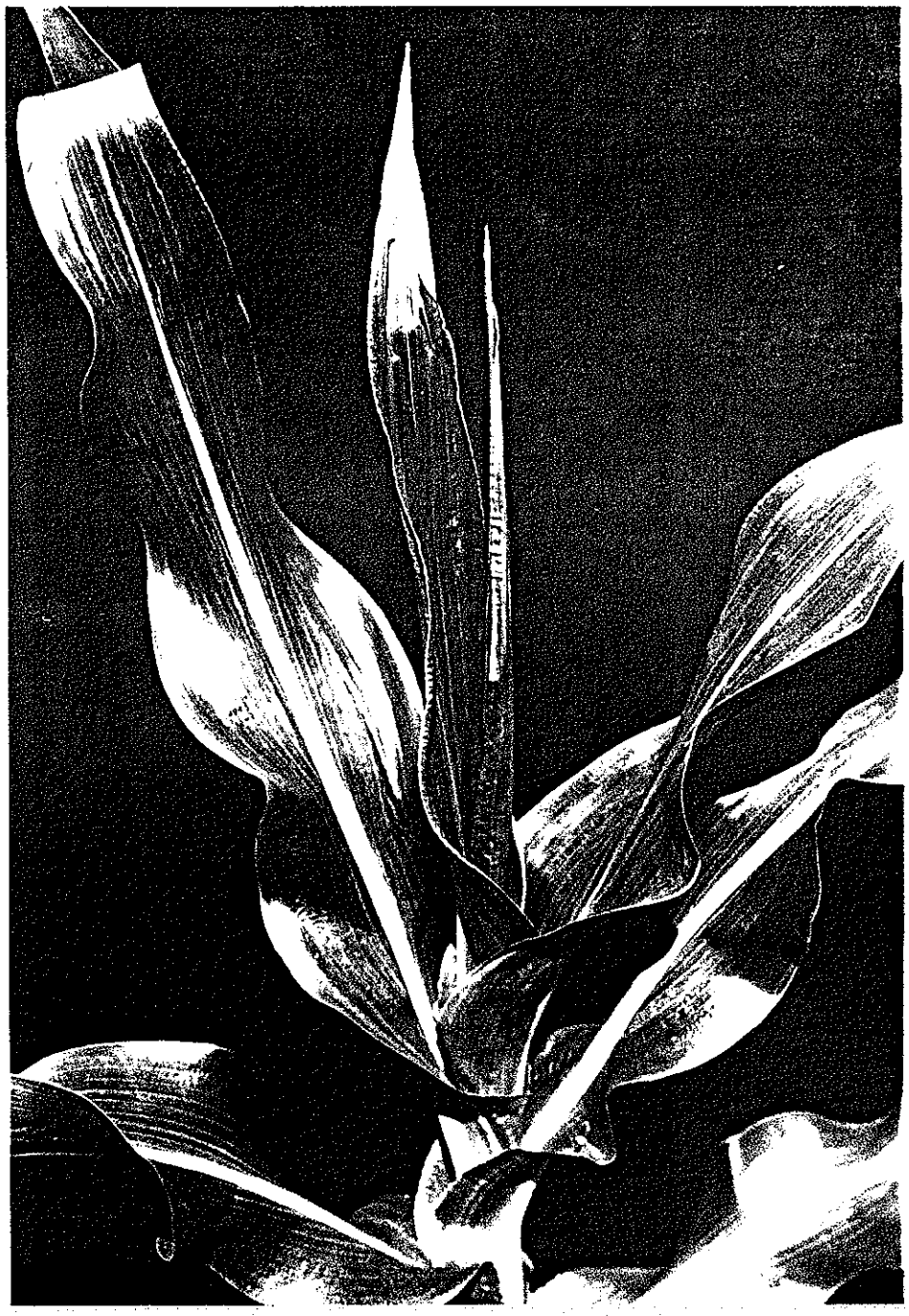

Photo #6

Photo #7

Photo #8

Exhibit E

8000666

The applicant:

Holden's Foundation Seeds, Williamsburg, Iowa, is employer of the plant breeders involved in the development of LH38.

Holden's Foundation Seeds have the sole rights and ownership to LH38.